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OF PLANT PROTECTION

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DISCOVERIES AND CURRENT EVENTS *

French West Africa: Desert Locusts (*Schistocerca gregaria*) in Mauritania (1).

26 June, 1932 — A large swarm of brownish and pink locusts passed, driven by the South wind to Atar, direction S. E. to N. W.
28 » » — A pink swarm passed near Atar, direction S. E.–N. W.

Algeria and Tunisia: Desert Locusts (*Schistocerca gregaria*) (1).

ALGERIA.

1st June, 1932 — A swarm settled and laid on 30 ha. at 10 kms. S. E. of Aumale.
A swarm of 2 kms. × 3 kms. going S. E.–N. E. passed at Messad.
2 » » — Small hatchings at 10 kms. S. of Kerrat .
Hatchings near Lafayette (fraction Ouled Faidel).
3 » » — A swarm coming from Messad settled at 15 kms. E. of Djelfa and departed towards the E.
4 » » — A large swarm, direction N. W.–S. E., passed at Messad.
Hatchings at the douar Taguedide of Aumale.
5 » » — A large swarm coming from S. E. settled at 40 kms. N. of Ghardaïa, and left on 6 June going N. W.
A fairly dense swarm passed, direction N. E.–S. W. over El Oued.
A small swarm flew over Mecheria, direction N.–S.
Hatchings at 10 kms. S. of Guardaïa.
6 » » — A large swarm flew over Messad, direction W.–E.
A swarm over Berrian, 40 kms. N. of Ghardaïa.
Small hatchings at 7 kms. S. W. of Kerrata.
Layings at 30 kms. N. of Mecheria.
7 » » — Some small hatchings on the douars Ouled Khaled and Ouled Slimane of Bou-Saâda.
9 » » — A large yellow swarm settled at 25 kms. S. of Sebdou.
A swarm coming from S. settled at 40 kms. E. of Saïda and departed towards N.

* In this, as in the next chapter, the countries are arranged in French alphabetical order.

(1) Communication from the General Government of Algeria, Department of Economic Services, to the International Institute of Agriculture.

9 June, 1932 — Two swarms of 2nd generation settled at 30 kms. E. N. E. of Touggourt.

10 » » — A swarm settled at 12 kms. S. of Martimprey on 5 × 3 kms. and departed.

A swarm of 2nd generation settled at Terdjan near Touggourt departed towards Ouargla.

A swarm of 2nd generation coming from the S. settled at El Goléa and departed towards N.

Hoppers migrating at 47 kms. S. W. of Ghardaia.

11 » » — A small swarm, direction N. W.–S. E. passed at 15 kms. West of Mecheria.

Small hatchings at Sidi Aïssa from layings made on 7 May.

A large swarm of 2nd generation, S. W.–N. E., passed over Fort Polignac.

A large swarm of 2nd generation settled on In Salah (damage).

12 » » — A large swarm coming from the S. settled on the douar Kimmel d'Arris.

A large swarm of 2nd generation coming from W. settled on El Goléa. Departed on 13 June towards the East.

A swarm of 2nd generation coming from W. settled at El Goléa and departed towards E.

13 » » — The swarm reported on 9 June at 25 kms. S. of Sebdou after several changes of position has departed towards W.

Some hatchings at Aumale.

14 » » — A swarm, direction S. N., passes over Fort Flatters.

A yellow swarm coming from the S., settled at 44 kms. N. of Laghouat, departing on 15 June towards E.

A swarm of 2nd generation crossed the gorges of El Kantara going towards the N.

Swarms of 2nd generation driven by the wind from the S. settled on the douars Labio and Ouled Abdi d'Arris.

A swarm of 2nd generation settled 47 kms. S. W. of Ghardaïa.

A swarm of 2nd generation settled at 3 kms. S. of Ghardaïa.

15 » » — Two swarms, flying W. E., at 40 kms. S. of Géryville.

A swarm of 2nd generation settled at Ouagla, departing towards S.

16 » » — Some hatchings at Sidi-Aïssa.

A swarm of 2nd generation, direction N.–S., over Djanet.

17 » » — Hatchings at 2-8 kms. from Ghardaïa.

A swarm of 2nd generation going W.–E. passed at 40 kms. S. of Géryville.

18 » » — Small swarms of 2nd generation settled on the douars Oullache and Zelatou d'Arris.

19 June, 1932 — A swarm of 2nd generation coming from the N. settled at El Goléa and departed towards W.
Swarm of 2nd generation in the S. of Kenchela.
20 » » — A small swarm, direction N. S., passed at Kerzar (Beni Abbès).
Hatchings at 17 kms. W. of Tadmit (Djelfa).
Hatchings at 12 kms. N. E. E.–S. E. of Tebessa.
Swarms of 2nd generation driven by the wind flew over towards N. W. Taberga (Khenchela).
A swarm of 2nd generation coming from the S. settled at 9 kms. E of Ghardaïa, departing on 21 June towards N. E.
22 » » — Hatchings at the douar Kimmel d'Arris.
23 » » — Hatchings at 12-15 kms. N. W. and N. E. of Tebessa.
Hatchings at 40 kms. S. of Djelfa.
Swarms of 2nd generation coming from N. E. at 60 kms. S. W., 70 kms. S. E., 120 kms. S. W. of Timimoun.
Swarms coming from S. S. W. observed at Fort Flatters.
24 » » — A large swarm of 2nd generation coming from the E. settled at El Goléa (damage).
A large swarm of 2nd generation settled on 20 June at Ghardaïa departed towards N. E. (damage).
25 » » — A swarm of 2nd generation going towards S. passed at 18 kms. N. of Ouargla.
26 » » — A large swarm coming from the S. settled at Beni Abbès, leaving on 27 June.
Hatchings at 15 kms. N. E. of Tebessa.
A swarm of 2nd generation coming from the S. settled at the douar Limmel d'Arris, leaving on 27 June.
A swarm of 2nd generation coming from S. W. settled at Adrar and departed towards N.
27 » » — A large swarm passed over Messad, direction S. W.–N. E.
A large swarm coming from the S. settled at the douar Bitam de Barika.
A swarm of 2nd generation settled at Chetma near Biskra (damage).
A swarm of 2nd generation settled near Beni Abbès.
A swarm of 2nd generation coming from the S. settled at Timi near Adrar.
28 » » — A large swarm crossed douar Bitam de Barika towards N.
A swarm of 2nd generation at the douar Tanza de Khenchela.
A swarm of 2nd generation coming from S. W. settled at 5 kms. S. E. of Géryville.
A swarm of 2nd generation coming from the S. W. settled at Fort Flatters (damage).
A swarm of 2nd generation settled on In Salah (damage).
29 » » — A swarm going N. passed over Arris.
Various swarms going towards N. E. or W. coming from the S. have been reported in the commune of Arris.

TUNISIA.

16 June, 1932 — A swarm of 2nd generation passed, direction S. N., at 95 kms. S. of Thala.

20 » » — A swarm of 2nd generation coming from the S. W. settled at 40 to 45 kms. S. E. of Thala and departed towards N. W.
A swarm of 2nd generation passed, direction W. E., at 80 kms. S. E. of Thala.

27 » » — A large swarm of 2nd generation coming from the S. settled in part at 75 kms. S. of Thala and departed towards the W.
A swarm of 2nd generation passed, direction S. E.–N. W., at 35 kms. S. E. of Thala.

29 » » — A swarm of 2nd generation passed, direction S.-N., at 3 kms. S.-E. of Thala.
A swarm of 2nd generation passed towards the S. at 40-50 kms. E. of Thala.
A swarm of 2nd generation coming from the S. settled at 75 kms. S. E. of Thala. Departed on 30 June towards the W.

Eritrea: Tropical Migratory Locusts (*Locusta migratorioides*) (1).

Towards the middle of June dense swarms of *Locusta migratorioides*, coming from the other side of the Abyssinian frontier, invaded the Colony which up to that time had been immune from the pest.

On 14 June, numerous locusts, sexually mature, coming from Bircutan, Tigrai, settled on the region of the Cunama and after having laid in the zone between the Sittona and Giarabà, resumed flight in the direction of the high tableland.

On 19 and 20 June, locusts of a reddish colour, coming from the other side of the frontier, arrived at Tzellimà, after having flown over the Zaid Accolom and the Medri Uod Seberà, and laid there.

From 20 June to the end of the month, other swarms coming from the Maragus, the Cohain and Tzellimà, all took flight towards the plain of Hazamò. In that locality also laying took place.

Towards the end of the month in the territory of the Residency of Barentù, between Sittona and Biaghela, the presence of small breeding grounds of hoppers was reported. These were destroyed by the technical staff and by the natives of the locality.

Measures were at once taken for establishing a service for prompt and accurate notification in order to mark down the localities where eggs have been deposited, to effect the destruction or the collection of the eggs and to carry out a rapid campaign against the hoppers.

(1) Communication from the official correspondent of the Institute, Dr. A. DE BENEDICTIS, Chief of the Agricultural Bureau of Eritrea, transmitted by the Government of the Colony.

India: *Leucoptera sphenograpta* in the Punjab (1).

During summer 1931, this leaf-miner of *Dalbergia sissoo* appeared as a serious pest in most parts of the Punjab. During November 1931 to January 1932, the moths of *L. sphenograpta*, Meyr. were emerging in large numbers and were seen flying about in myriads. Clouds of them appeared in fields and were seen on the roads and even in houses. All through the winter 1931-32 they were found in hedges, among bushes, under barks of trees, in cracks in the soils, in holes in the walls, in fact in all sorts of positions where they could find shelter. They became active early in March, when *D. sissoo* produced freshleaves. Eggs were laid and caterpillars made blotches. There was considerable defoliation. The enormous increase in the number of these moths may be attributed to a rather mild winter.

Tripolitania: Control of Desert Locusts (*Schistocerca gregaria*) (2).

In connection with the serious plague of locusts which occurred in 1932 [see this *Bulletin* 1932, No. 6, p. 96], control work was speedily organised and adults and eggs were collected in large quantities. In addition ploughing was started on non-irrigated lands with the object of destroying the eggs, a policy which has given excellent results.

On 22 April a start was made with hopper control in the south-western zone and afterwards in all other districts as soon as hatching took place. In the first instance use was made of sodium arsenite but, when the invasion began to assume alarming proportions, poisoned bran was employed with great success.

On irrigated lands where it was necessary to avoid poisoning the crops, control was carried out with the aid of naphtha or petrol sprays which killed the hoppers immediately.

The use of trenches also proved very serviceable for the control of locusts which have reached the neighbourhood of the concessions or have obtained a footing in the crops.

At a later stage two batteries, each consisting of ten flame guns sent expressly by the War Ministry, were brought into action.

These were used in the area between Castel Benito and Azizia on land which was particularly suitable for the purpose as it has a heavy growth of inflammable bush (*Paliurus*). The batteries were used 1500 times to destroy the locusts which were thickly distributed over the abundant scrub. The action of the flame guns proved highly effective and at same time inexpensive. This is contrary to experience obtained elsewhere but is to be explained by the presence of scrub in which the locusts stayed in large numbers from the evening till the morning hours.

The whole campaign was brought to a conclusion by 20 June.

(1) Communication from the official correspondent of the Institute, Mr. M. Afzal HUSAIN, Locust Research Entomologist, Punjab Agricultural College, Lyallpur, India.

(2) Communication from the Government of Tripolitania, forwarded to the International Institute of Agriculture by the Italian Ministry for the Colonies.

In the meantime the hoppers that had escaped destruction reached the adult stage and after a halt of some days in different localities took flight towards the South-West. The passage of the swarms was observed at Nalut, Gadames, Garian, Mizda, etc.

The campaign was directed by the Plant Protection Section of the Agricultural Bureau.

The Commandant of the troops gave assistance by placing at the disposal of the Agricultural Bureau the parties of soldiers required. The work of one hundred native prisoners was also utilised.

In the different concessions the concessionaries collaborated effectively with the Bureau which in return gave assistance and provided all necessary material.

During the campaign about 10.000 quintals of bran, 450 quintals of sodium arsenite, 400 quintals of naphtha and petrol, and 18 quintals of benzine were utilised.

The adult locusts which entered Tripolitania caused damage to several vineyards.

Hoppers and nymphs damaged some plantations at Azizia.

More serious damage was done in the concessions of Castel Benito.

Preparations are already being made for the organisation of the control on a wider scale, with a view to protection against any future invasion.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany (1). — By Police Order of 6 June 1932 it is forbidden in the administrative area of Jork to use sprays of lead arsenate in mixed orchards after 12 June 1932 and in any orchard after 20 June. Containers in which arsenical compounds have been kept must be disposed of in such a way as to exclude all possibility of contact with man or beast.

Germany (Bavaria) (1). — The elm disease having been reported in Bavaria, the Ministry of the Interior by Ordinance of 21 April 1932 has decreed measures similar to those adopted by the Free State of Bremen and by Oldenburg [see this *Bulletin*, 1931, No. 6, p. 97, and 1932, No. 2, p 25].

In a circular, also dated 21 April 1932, addressed to the authorities attached to this Ministry, the police is obliged to keep elm trees under supervision from this point of view and to adopt suitable means of control.

Germany (Mecklenburg-Schwerin) (1). — By Notification of 3 April 1932 the prescriptions have been confirmed which reserve the sale of poisons used for plant protection to pharmacists, to dealers in poisons, to the official dispensaries of the Plant Protection Service and to agricultural co-operative societies holding a special permit granted by the Central Sanitary Service. These pre-

(1) Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

scriptions relate also to toxic products used for the disinfection of seeds. The above Notification at the same time calls the attention of the police authorities to the illegal trade in these products.

Germany (Saxony) (1). — By Ordinance of 9 May 1932 and with a view to preventing the spread of the cherry fruit fly (*Rhagoletis cerasi*), introduced from abroad and reported several times in Saxony, the Ministry of National Economy has authorised the Communes to enact, if necessary, by police ordinance, measures of control of this parasite. The communes are recommended to use as a basis for such measures Leaflet No 83 published in February 1932 by the Biologische Reichsanstalt für Land- und Forstwirtschaft of Berlin-Dahlem.

In addition orders may be given for gathering the cherries as soon as they are known to be infested by the fly and for preventing the placing of these fruits on the market.

As a check on the execution of orders given, the communes are recommended to require the collaboration of all officials engaged in work in connection with fruit growing and of the specialists attached to the agricultural schools.

Germany (Stade) (1). — By Police Order No. 158, dated 16 April 1932, the Landrat of Jork announces that in view of the protection of bees, it is prohibited :—

(1) to spray the flowers of fruit trees with arsenical compounds;

(2) to carry out such spraying on trees in the neighbourhood of hives before the evening, when the bees have returned from their flights, and without having secured the consent of the owners of the bees.

Argentina. — By Presidential Decree No. 02613-284, of 26 April 1932, the Citrus Red Scale ('cochinilla roya australiana', *Chrysomphalus aurantii*) has been declared to be a plague for agriculture, in accordance with the Law No. 4863.

The Department of Agriculture, in agreement with the provisions of the Law, will adopt all means considered advisable for the destruction of this pest. (*Boletín Oficial de la República Argentina*, Buenos Aires, 9 de mayo 1932, año IX, núm. 11.385, pág. 214).

Belgium. — By Law of 7 August 1931 the International Convention for Plant Protection, signed at Rome on 16 April 1929 [see this *Bulletin*, 1929, No 4, pp. 50-55], will take full effect. (*Moniteur Belge*, Bruxelles, 11-12 juillet 1932, 102e année, nos 193-194, p. 3777-3783).

*** The Circular of the Ministry of Finance No. D-604 of 27 January 1932 announces that the headquarters of the Belgian Plant Protection Service has been transferred to Ghent. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1019).

(1) Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

*** By Circular No. D-6660 of 26 April 1932 the Minister of Finance gives instructions to the Customs Offices in regard to the Ministerial Decree of 18 April 1932 [see this *Bulletin*, 1932, No. 7, p. 110] in reference to the importation of potatoes and of plants and fruits of tomatoes and egg-plants.

The importation of these products coming from any country other than France is subject to the presentation of a certificate released by the official Plant Protection Service of the country of origin certifying that the products have been gathered and despatched at points distant at least 20 km. from any crop attacked by the Colorado beetle (*Leptinotarsa decemlineata*) and potato wart disease (*Synchytrium endobioticum*). The limit of 20 km. may in the case of wart disease be reduced to 500 m. if the Plant Protection Service gives a satisfactory explanation and in addition guarantees that the consignments in question are exempt from wart disease.

The consignments not accompanied by certificates in conformity with these instructions will be turned back unless absence of the Colorado beetle is proved by an inspection, carried out at the expense of the importers by the Belgian Plant Protection Service.

These provisions apply equally to consignments in transit except in the case of a direct transit under supervision of the Customs Office. For transit to the Grand Duchy of Luxemburg, special provisions are in force. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 1. Juliheft, S. 1374-1375).

Canada (1). — By Order in Council P. C. 643 of March 29, 1932, Regulation No. 18 (Foreign) has been rescinded, and the following substituted therefore:—

Regulation No. 18 (Foreign), 1st Revision, prohibiting the importation into the Dominion of Canada of all species and varieties of wheat, etc., from Australia and Asia unless accompanied by a certificate, on account of flag smut.

The importation into the Dominion of Canada of all species and varieties of wheat, including straw, bran and chaff, from Australia and Asia, is prohibited, unless a permit for each importation has been procured by the importer from the Secretary, Destructive Insect and Pest Act Advisory Board, Ottawa, and each shipment is accompanied by a certificate, issued and signed by an authorized official of the country in which the said importation originated, to the effect that the material covered by the certificate was harvested in a locality where the disease flag smut (*Urocystis tritici* Koernicke) is not known to exist.

The requested permit and certificate must be presented with the other entry papers to the Collector of Customs before the shipment can be cleared.

By the same Order in Council the following new Regulations No. 19 (Foreign) and No. 10 (Domestic) have been made and established:—

Regulation No. 19 (Foreign), prohibiting the importation into the Province of British Columbia of gladiolus from the United States of America.

(1) Communication from the official correspondent of the Institute, Mr. ARTHUR GIBSON, Dominion, Entomologist, Entomological Branch, Department of Agriculture, Ottawa, Canada.

The importation into the Province of British Columbia of gladiolus, including cormels, corms, stalks, leaves and bloom, is prohibited from the United States of America, on account of the gladiolus thrips (*Taeniothrips gladioli* M. and S.).

Regulation No. 10 (Domestic), prohibiting the importation into the Province of British Columbia of gladiolus from the other provinces of Canada.

The importation into the Province of British Columbia of gladiolus, including cormels, corms, stalks, leaves and bloom, is prohibited from the other provinces of Canada, on account of the gladiolus thrips (*Taeniothrips gladioli* M. and S.).

Spain. — By ' Orden ' of 20 April 1932 the Ministry of Agriculture, Industry and Commerce has transmitted to the Ministry of Foreign Affairs the following list of insects, fungi and bacteria whose presence in consignments of plant products for importation into Spain or whose occurrence in their country of origin will prohibit importation of the plants, their fruits, seeds or parts infected, also of any materials capable of carrying infection with the species named :—

Insects. — *Aonidiella perniciosa* (' cochinilla de San José ') on fresh fruits of any kind; *Laspeyresia molesta* (' polilla oriental ') in fresh fruits; *Leptinotarsa decemlineata* (' escarabajo de la patata ', ' escarabajo del Colorado ') on tubers, peelings and leaves of potato or other Solanaceous plant; *Epithrix cucumeris* (' coleóptero norteamericano de la patata '); *Aleyrodes citri* and other species of the same genus; *Sesamia calamistis* in stalks and cobs of maize; *Icerya purchasi* (' cochinilla australiana ' or ' acanalada '); *Sasakiaspis* (*Diaspis*) *pentagona* (' cochinilla de la morera ') on plants of mulberry, peach, cherry-laurel, locust tree, willow, white-beam, japanese sophora, spindle tree, Canadian poplar, apricot, apple, pear, cherry, grape vine and jessamine, also on cacao pods; *Coccus viridis* (' cochinilla del cafeto ') on coffee fruits and citrus plants; *Popillia japonica* (' escarabajo del Japón '); *Anthonomus grandis* (' picudo del algodonero '); *Pectinophora gossypiella* (' gusano rosado del algodonero ').

Fungi and bacteria. — *Guignardia Bidwellii* (' podredumbre negra de la uva ') on unrooted and rooted cuttings of European and American grape vines; *Endothia parasitica* (' chancro americano del castaño ') on plants, bark, branches, fruits or seed of chestnut; *Diaporthe perniciosa* on fruit trees; *Synchytrium endobioticum* (' sarna verrugosa ' or ' sarna negra de la patata ') in potato tubers, fruits and green parts of all species of Solanaceae (tomato, eggplant, pepper) ; *Thielaviopsis paradoxa* and *Fusarium cubense* on plants and fruits of banana and on plants and fruits of pineapple ; *Ascochyta chlorospora* on unshelled almonds ; *Graphium Ulmi* (' enfermedad holandesa del olmo ') in branches, cuttings or plants of elm ; *Corticium salmonicolor* and *C. Koleroga* on plants of orange and other citrus species, their parts, fruits and fruit rind; *Pseudomonas* (*Bacterium*) *Citri* (' chancro de los citrus ') on plants and fruits of citrus species ; *Bacillus amylovorus* on plants and fruits of pear, apple, quince and other cultivated or wild Pomaceae; *Phyllosticta solitaria* on plants and fruits of apple and

other species of the genus *Malus*; *Neofabraea malicorticis* (' antracnosis americana del manzano ') on plants and fruits of apple, pear and quince; *Gymnosporangium Juniperi-virginianae* (' roya americana del manzano ') on plants and fruits of apple, and *Juniperus virginiana*.

Certificates issued by the official Phytopathological Services of the different countries sending to Spain plant products or living plants must declare that the respective countries are free from the diseases and pests mentioned in the present list. (*Gaceta de Madrid*, Madrid, 24 abril 1932, año CCLXXI, tomo II, núm. 115, págs. 628 y 629).

*** By ' Orden ' of 13 May 1932 the Regulations have been approved for the National Committee for Medicinal Plants of Spain and the Spanish Colonies and Protectorates, which was established by ' Real orden ' of 7 May 1928 under the ' Ministerio de la Gobernación ' and later incorporated by Royal Decree of 7 November 1930 in the ' Dirección General de Agricultura '.

To ensure effective work the Committee will be divided into six Sections. The Section concerned with plant pathology, commerce and control will be responsible *inter alia* for the study and control of diseases attacking medicinal plants. (*Gaceta de Madrid*, Madrid, 15 mayo 1932, año CCLXXI, tomo II, núm. 136, págs. 1217 a 1220).

Iraq. — By Ordinance No. 10 of 25 February 1932 the importation into Iraq of fresh fruits and of slips of citrus trees, as well as of grapes, leaves and slips of vines is prohibited unless accompanied by a certificate of the competent Plant Protection Service attesting the absence of any disease. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1031).

Italy. — The Royal Decree-Law No. 816 of 19 March 1932 gives full and complete execution to the Italian-Hungarian Agreement on Exportation, signed at Rome on 23 February 1932.

According to the article 4 of this Agreement, which came into force on 21 July 1932, it is understood that the limitations on transit, of a sanitary kind, which will be assumed by the sanitary regulations referred to in art. 5, can only be established in the cases contemplated by the Convention of Rome of 29 March 1923 for the regulation of transit and communications over the lines of the Danube-Save-Adriatic Railway Company, formerly the Southern Railways Company.

It is understood in addition, that as regards the transit of animals and of products of an animal or vegetable origin, the provisions of the special Agreement in force between the High Contracting Parties will continue to be applicable.

According to art. 5 in the reciprocal traffic of the railways contemplated by the present Agreement, sanitary regulations, as far as possible uniform, will be applied to the disinfection of transports and of means of transport. The same will hold in respect of the other preventive measures against infectious diseases of men, animals, and plants. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 19 luglio 1932, anno 73°, n. 165, pp. 3410-3412, 3423).

*** By Law No. 878 of 8 June 1932, the Royal Decree-Law No. 242 of 19 March 1932 [see this *Bulletin*, 1932, No. 5, pp. 80-81] giving effect to the commercial 'Modus vivendi' between Italy and France signed at Rome on 4 March 1932, has been made Law. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 4 agosto 1932, anno 73°, n. 179, p. 3610).

*** By Ministerial Decree of 15 July 1932 living plants, *inter alia*, are added to the commodities shown on Table A ('Commodities the importation of which is prohibited'), appended to the Royal Decree-Law No. 1923 of 14 November 1926, transformed into Law No. 1495 of 7 July 1927. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 19 luglio 1932, anno 73°, n. 165, p. 3421).

*** By Ministerial Decree of 15 July 1932 sanitary regulations have been made for the importation from abroad of varieties of potatoes for use exclusively as seed for the season 1932-1933. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 21 luglio 1932, anno 73°, n. 167, pp. 3442-3444).

Latvia. — The Ordinance No. 44 of 1st March 1932 of the Minister of Finance gives a new list of products for the control of plant diseases and pests, which are admitted duty free. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1052-1053).

Morocco (French Zone). — In view of the fact that the date palms of the palm groves of Morocco are attacked by a disease known under the name of 'bayoud' the cause of which has not yet been determined, there has been instituted, by Residential Decree of 28 May 1932, a Commission for the study of the control of 'bayoud'. Its function is to draw up programmes of enquiries and trials, to carry out technical observations in the palm groves infected by the disease and to examine all the control measures that have hitherto been tried.

The Commission meets officially once a year, at Morocco. In addition, it may be summoned whenever required, by the action of the General Director of Agriculture, Trade and Colonisation. (Empire Chérifien. Protectorat de la République Française au Maroc. *Bulletin Officiel*, Rabat, 10 juin 1932, XX^{ème} année, n° 1024, p. 654).

*** A Decree of the Director of Waters and Forests of Morocco dated 20 May 1932, authorises, up to 3 September 1932, the day before the opening of the 1932 shooting season, the owners or holders of lands included in certain zones of the annex of Tedders, district of Temmour, to destroy on the fields by every means other than fire, rabbits causing damage to their crops. The rabbits killed may not be transported, hawked for sale or placed on the market, in any place whatsoever. (*Ibid.*, p. 656).

Netherlands (The). — In conformity with the Royal Decree of 24 March 1932 the object of which is to prevent the introduction of the Colorado beetle [*Leptinotarsa decemlineata*] the Minister of the Interior and of Agriculture by

Decree of the same date has prohibited the importation or transit of potatoes coming from France. The importation and transit of fresh vegetables coming from France are also prohibited during the period from 15 March to 14 October, unless the consignments are accompanied by an official certificate issued by the Phytopathological Service of the importing country declaring that the merchandise is free from the beetle and comes from localities where the beetle is not found either in the place itself or within a radius of 200 kilometres. Consignments not exceeding 50 kilogrammes are however admitted at the Customs Office of Roosendaal only, on condition that they show no signs of infestation. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1093-1094).

Portugal. — By Decree No. 21174 of 27 April 1932, importation of potatoes has been brought under new plant sanitation measures.

The importer must notify potato consignments to the Plant Protection Service at least six days before their arrival. An Inspector of the Service must be present at the place of entrance of the tubers. He will then examine the certificates of origin and of health. After having verified the seals attached by the Plant Protection Service of the country of origin, he will make the check by opening at least five per cent. of the bags and emptying at least one per cent. If any trace of the presence of potato wart disease [*Synchytrium endobioticum*] or of the Colorado beetle [*Leptinotarsa decemlineata*] is observed, the entire consignment must be destroyed or returned to the country of origin.

Potatoes which have not more than 5 per cent. of damaged tubers are considered as healthy, the scars produced by the common scab (*Actinomyces Scabies*) being taken into consideration only if they cover more than one tenth of the tuber. A sanitary certificate will be granted at once under which such potatoes may be delivered to the consignees.

Parts of the potatoes containing more than five per cent. and less than 25 per cent. of damaged tubers may, after strict selection, be granted a sanitary certificate. Affected potatoes must be destroyed under the supervision of the Customs Office. A full report must be made.

Parts of potatoes containing more the 25 per cent. of damaged tubers will be treated as those attacked by wart disease or Colorado beetle.

The inspection fees collected by the Customs Office remain as before [see this *Bulletin*, 1932, No. 5, p. 81].

Appeal against the decision of the Inspector of the Plant Protection Service may be made by the importer to the superior authority which will proceed to a fresh inspection. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 1. Juliheft, S. 1449).

Sweden. — By Notification of the medical authority dated 8 March 1932, there are indicated the products with nicotine, arsenical and mercury bases used for plant protection, which are regarded as poisons of the second class. (*Deutsches Handels-Archiv*, Berlin 1932, 86. Jahrg., 2. Maiheft, S. 1107-1108).

Czechoslovakia. — By Ministerial Ordinance of 1st February 1932 and with the object of checking the introduction of the San José Scale (*Aspidiotus*

perniciosus), the prohibition of importing living plants, slips, suckers, etc., as well as material that has been used for their packing and transport, has been extended to consignments coming from Africa, Austria d Hungary, where the presence of the insect has been reported. (*Deutsches Handels-Archiv*, Berlin 1932. 86. Jahrg., 2. Juniheft, S. 1293).

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[*Phyt. melophthora* n. sp., *Rhagoletis pomonella*. Description of the new species in English].

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ARNAUD, GABRIEL, et ARNAUD, MADELEINE. Traité de Pathologie végétale. (Encyclopédie Mycologique, tomes III, IV et V). Tome I : vol. 1, p. 1-[994], fig. 1-355, 1 portr. ; vol. 2, p. 995-1831, fig. 356-702 ; vol. 3 [Atlas de 34 pl. en coul. d'après les aquarelles de Suzanne B a l l i n g s]. Paris, Paul Lechevalier & fils, éditeurs, 1931.

[To judge from the three volumes which have so far appeared and which form together tome I of this treatise, the work under review is without precedent in France. If continued on the same plan, the remarkably full treatment of the separate subjects, the wealth of illustration, the abundance of bibliographies (one at the end of each section of the work) will render this treatise when it finally issues from the press the most complete and most modern ever produced in the French language.

The first volume opens with an Introduction (pp. 7-106) sub–divided under heads as follows :—

I. Considérations générales. – II. Historique de la Pathologie végétale. – III. Classification des maladies. – IV. Méthodes générales de préservation et de lutte contre les maladies des végétaux. – V. Produits anticryptogamiques et appareils de traitement. – VI. Climatologie. – Bibliographie générale.

The remainder of the volume deals with the diseases of the vine (pp. 107-649), general information on the diseases of fruit trees (pp. 651-658), and diseases of the apple (pp. 659-993).

The discussion of vine diseases is prefaced by an historical account of vine cultivation in Europe and North America as well as by a classification of the cultivated vines and some genetic considerations.

Volume 2 deals successively with diseases of the pear tree (pp. 995-1145), of the quince (pp. 1146-1162), the medlar (pp. 1163-1165), service trees (pp. 1166-1168), hawthorns (pp. 1169-1171), the peach and the almond (pp. 1172-1268), the

apricot (pp. 1269-1300), plum (pp. 1301-1386), and cherry (pp. 1387-1420). Subsequently the discussion is pursued in reference to the diseases of the bush fruits: *Ribes* (pp. 1424-1482), *Rubus* (pp. 1483-1533), *Vaccinium* (pp. 1534-1541). The strawberry is also dealt with under this head (pp. 1542-1547).

The last part of volume 2 is devoted to diseases of the Mediterranean crops: olive tree (pp. 1570-1613), citrus (pp. 1614-1671), fig (pp. 1672-1684), mulberry (pp. 1685-1738), pomegranate (pp. 1739-1740), loquat (pp. 1741-1742), Japanese persimmon (pp. 1743-1744), carob (pp. 1745-1746), pistachio (pp. 1747-1748), jujube tree (p. 1749), and date palm (pp. 1750-1763).

It should be mentioned that both for the vine and for the more important among the other plants enumerated above, in addition to the account of the cryptogamic, physiological and non-parasitic diseases or those due to undetermined cause, some brief notes are supplied in regard to the principal animal parasites on the same plants.

Volume 3 consists, as stated, of an Atlas of admirably reproduced coloured plates representing the external features of the plant diseases reviewed].

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Biourge, Ph., et Sokal, N. Nouvelles recherches sur les maladies de la pomme de terre dites à virus filtrants. *Agricultura*, Louvain, 1932, 35e année, nº 2, p. 77-114, fig. 1-19, pl. en coul. 1-9. Bibliographie, p. 108-109.

[With title and summary also in Flemish. The writers summarise in the following way the results of their experimental researches :— 1º que plusieurs bactéries, décrites dès le début de la bactériologie, figurant déjà dans le « Bakteriologische Diagnostik » d'Eisenberg (1891) et généralement considérées comme saprophytes, ont été trouvées parasitant les tubercules de pommes de terre, au champ même ou dans les locaux de garde, et que les plantes issues des tubercules où le chauffage détecteur de Biourge a révélé leur présence, montrent pendant leur végétation, tous ou presque tous les phénomènes que la Phytopathologie a attribués jusqu'ici à des virus filtrants, non visibles au microscope ou, du moins, non cultivables au laboratoire; 2º que ce sont des bactéries sporogènes en général, plusieurs à spores très résistantes à l'ébullition; 3º que l'injection aseptique de cultures vivantes de ces microbes à des plantes en bonne santé y détermine, après une courte incubation, les phénomènes attribués aux virus filtrants; 4º qu'il est impossible, à peu près, d'obtenir des plantes saines, en partant de tubercules où le chauffage à 42ºC. a fait reconnaître l'existence de ces bactéries; 5º qu'il est possible d'isoler de tout sujet manifestant une virose, l'un ou l'autre de ces microbes, soit, de préfé-

rence, par prélèvement aseptique irréprochable, soit, si des spores se sont déjà formées, par chauffage suffisant des jus bruts portés ensuite, en milieux nutritifs, aux températures favorables de 33 à 44° C., et même au délà: 45°, 46°.5 et 66° C.].

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[Dying off of seedlings, especially of *Cephalocereus* and *Cereus* in the nurseries, produced by *Helminthosporium Cactacearum* n. sp. Bongini. A Latin diagnosis is appended].

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This statement is fully confirmed by the contents of the book, and its usefulness can be judged merely from the enumeration of the headings of the single chapters :—

Part I. – Structure, biology, cytology and therapeutics.

Introduction.

Chapter I Morphology and cytology of spore forms. – Chapter II. Germination, viability and factors affecting viability of the spores. – Chapter III. Entry and penetration of the host ; host factors affecting penetration. – Chapter IV. Dissemination and perpetuation of the rusts. – Chapter V. Parasitism – Autoecism and heteroecism : host factors affecting parasitism. – Chapter VI. Biologic and physiologic specialization. – Chapter VII. Therapeutics. – Chapter VIII. Evolution of families and genera. – Chapter IX. Technique. – Chapter X. Classification of the Uredinales.

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I. Einleitung (Geschichtliches, geographische Verbreitung, wirtschaftliche Bedeutung). – II. Krankheitsbild und-verlauf. – III. Histologisches. – IV. Physiologie. – V. Übertragung. – VI. Einfluss äusserer Faktoren auf die Krankheit. – VII. Innere Krankheitsfaktoren. – VIII. Ätiologie der Krankheit. – IX. Bekämpfung.

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